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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,167	05/10/2006	Heinrich Becker	3724.1007-000	5617
21005 7590 11/12/2008 HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133				
EXAMINER				
HEINER, LIAM J				
ART UNIT		PAPER NUMBER		
1796				
MAIL DATE		DELIVERY MODE		
11/12/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/568,167

**Applicant(s)**

BECKER ET AL.

**Examiner**

Liam J. Heincer

**Art Unit**

1796

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 37-44 and 46-72 is/are pending in the application.
- 4a) Of the above claim(s) 60-68 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 37-44, 46-59, and 69-72 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

Applicant's election with traverse of Group I, claims 37-59 and 69-72 in the reply filed on July 30, 2008 is acknowledged. The traversal is on the ground(s) that the special technical feature is not taught by EP 1074600 as set forth in the restriction. This is not found persuasive because as shown below, EP 1074600 does in fact teach the repeat unit of formula (I) as shown below.

The requirement is still deemed proper and is therefore made FINAL.

Claims 60-68 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on July 30, 2008.

### *Claim Rejections - 35 USC § 102*

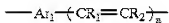
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

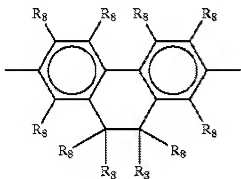
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 37-44, 49-59 and 69-72 are rejected under 35 U.S.C. 102(b) as being anticipated by Noguchi et al. (EP 1074600).

Considering Claims 37-39, 55: Noguchi et al. teaches a polymer containing at least 10 mol% of units (¶0020) of units of the formula



(¶0016) where R<sub>1</sub> and R<sub>2</sub> are hydrogen, an alkyl group having 1 to 20 carbon atoms, or an aryl group with 6 to 60 carbon atoms (¶0016), and Ar<sub>1</sub> is



(7:30-35). Noguchi et al. teaches R<sub>8</sub> as being

hydrogen, cyano groups, amino groups, silyl groups, alkyl or alkoxy groups with 1 to 20 carbon atoms, or an aryl or aryloxy group with 6 to 60 carbon atoms (§0027).

Considering Claim 40: Noguchi et al. teaches the polymer as being conjugated (§0016).

Considering Claims 41, 42, 49, and 50: Noguchi et al. teaches the polymer as additionally containing units that can be thiophene derivatives, pyrrole derivatives, carbazole derivatives, or furan derivatives (§0033).

Considering Claims 43 and 44: Noguchi et al. teaches the polymer as additionally containing units that can be pyridine, pyrazine, anthracene, or quinoline derivatives (§0033).

Considering Claims 51 and 52: Noguchi et al. teaches the polymer as additionally containing units that can be 1,4-phenylene, 1,4-naphthylene, 4,4'-biphenylene, or fluorene (§0033).

Considering Claims 53 and 54: Noguchi et al. teaches the substituents as being alkyl groups with 1 to 20 carbon atoms (§0016).

Considering Claim 56: Noguchi et al. teaches the phenanthracene units as having alkoxy substituents with 1 to 20 carbons along with alkyl substituents with 1 to 20 carbon atoms/formulae LXXIX and LXXXI (§0027).

Considering Claim 57: Noguchi et al. teaches the phenanthracene units as being present in at least 41 mol% (§0018).

Considering Claim 58: Noguchi et al. teaches the polymer as being used in a mixture (§0061).

Considering Claim 59: Noguchi et al. teaches a solution comprising the polymer and a solvent (§0058).

Considering Claim 69-72: Noguchi et al. teaches the polymer as being used in a polymer LED (§0061).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 46-48 rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi et al. as applied to claim 37 above, and further in view of Baldo et al. (Appl. Phys. Lett., 75(1), 1999). Considering Claims 46-48: Noguchi et al. teaches the polymer of claim 37 as shown above.

Noguchi et al. does not teach units that provide electrophosphorescence to the polymer. However, Baldo et al. teaches using a tris(2-phenylpyridine) iridium unit in an organic LED (pg. 4). Noguchi et al. and Baldo et al. are combinable as they are concerned with the same field of endeavor, namely organic LEDs. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the iridium unit of Baldo et al. in the polymer of Noguchi et al., and the motivation to do so would have been, as Baldo et al. suggests, phosphorescent units provide high quantum and power efficiencies (pg. 4).

### ***Response to Arguments***

Applicant's arguments filed July 30, 2008 have been fully considered but they are not persuasive, because:

A) Applicant's argument that Noguchi et al. does not teach the claimed structure is not persuasive. In the instant claims both a and b can be zero, leaving a polymer with only the dihydrophenanthrene structure. This structure is taught in Noguchi et al. as shown above (7:30-35). The presence of a vinylene unit in the polymer of Noguchi et al. is not precluded as the claims are directed to a polymer "characterized in that it comprises" the claimed units. The transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., *Mars Inc. v. H.J. Heinz Co.*, 377 F.3d 1369, 1376, 71 USPQ2d 1837, 1843 (Fed. Cir. 2004). See MPEP 2111.03. As the vinylene unit is an unrecited element, its presence does not differentiate the *claimed* invention from the prior art invention.

B) Applicant's argument that the secondary reference does not rectify the deficiencies of Noguchi et al. are not persuasive as the alleged deficiencies have been addressed above.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

*Correspondence*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/  
Supervisory Patent Examiner, Art Unit 1796

LJH  
October 23, 2008